WHAT IS CLAIMED IS:

1. A process for screening an array of materials comprising:
   a) containing the array of materials within a cell and in alignment with a window in the cell;
   b) contacting the array of materials with a feed fluid while sequentially selectively heating each of the materials in the array by impinging radiation that is passed through the window onto the selected material to form an effluent corresponding to the heated material;
   c) separating each effluent, by flowing each effluent sequentially through a semipermeable membrane to form sequential sample streams; and
   d) detecting at least one component of the sequential sample streams.
2. The process of Claim 1 wherein the heating is impinging radiation from a laser on the selected material.
3. The process of Claim 2 wherein the laser is defocused to impinge the radiation on the surface of the selected material.
4. The process of Claim 1 wherein the materials are selected from the group consisting of catalysts and adsorbents.
5. The process of Claim 1 wherein the detecting is accomplished by mass spectrometry.
6. The process of Claim 5 further comprising recording the mass spectrometry determinations using a microprocessor.
7. The process of Claim 1 further comprising isotope labeling at least a first component of the feed fluid.
8. The process of Claim 7 further comprising determining the quantity of at least one isotope labeled component of the effluent.
9. The process of Claim 8 further comprising determining kinetic information from the quantity of at least one isotope labeled component of the effluent.

10. The process of Claim 1 wherein the feed fluid contains at least carbon monoxide and water and the materials of the array are potential water-gas shift catalysts.

11. The process of Claim 1 wherein the membrane is maintained at a lower temperature than that of the selected material.

12. The process of Claim 1 further comprising maintaining the overall cell at a selected temperature.

13. The process of Claim 1 further comprising repeating steps b)-d) one or more additional times.

14. The process of Claim 13 further comprising comparing the results of the repetitions to determine the effect on the materials with exposure to the feed fluid over time.

15. The process of Claim 1 further comprising determining, using the detections of components, information regarding a characteristic selected from the group consisting of activity, selectivity, adsorption capabilities, desorption capabilities, mechanisms of reactions, kinetics of reactions, material formulation optimization, and process conditions optimization.

16. The process of Claim 1 further comprising contacting the array of materials with a pretreatment fluid prior to contacting with the feed fluid.

17. The process of Claim 16 further comprising heating the array of materials, sequentially or collectively, during the contacting with a pretreatment fluid.

18. The process of Claim 1 further comprising diffusing the feed fluid prior to contacting with the array of materials.

19. The process of Claim 18 further comprising maintaining a pressure P_1 of the feed fluid prior to dispersion, maintaining a pressure P_2 in a portion of the cell containing the array of materials, and maintain a pressure P_3 of the sequential sample streams, where $P_1>P_2>P_3$.